

LISTING OF CLAIMS

1. (Original) A reactor for chemical processes involving catalytic reactions of gasses at high temperatures, comprising:

a reactor shell comprising an inlet and an outlet, the reactor shell being suitable for operation at elevated pressures; and

a metallic basket suitable for operation at elevated temperatures inside the reactor shell, the metallic basket comprising an inlet channel, metallic sidewalls, and a bottom opposite the inlet channel, the bottom extending in a direction transverse to the inlet channel, and the metallic basket having sidewalls insulated by a layer of insulation material which is provided between the sidewalls of the metallic basket and an inner wall of the reactor shell,

wherein the inlet channel and the sidewalls are gas tight, and

wherein the basket further comprises a fixed catalyst bed comprising particles or a monolith active in catalytic partial oxidation of hydrocarbons, said fixed catalyst bed being supported by said bottom and surrounded by said metallic sidewalls, and

wherein the inlet channel coincides with the inlet of the reactor shell in a gas tight manner ensuring the entire amount of gas flowing through the entire volume of catalyst, and

wherein the reacted gas leaves the basket inside the reactor shell, ensuring same pressure inside and outside of the basket, and

wherein an inner surface of the metallic basket is coated with a ceramic material.

Claim 2. (Canceled)

3. (Previously presented) The reactor according to claim 1, wherein an electric heater is installed on the outer surface of the metallic basket.

4. (Previously presented) The reactor according to claim 3, wherein an inner surface of the basket at the position of the heater is coated with a catalytic material active in partial oxidation.

5. (Previously presented) The reactor according to claim 4, wherein the catalytic material comprises platinum, rhodium, ruthenium or nickel.

Claim 6. (Canceled)

7. (Previously presented) A method for catalytic partial oxidation of hydrocarbons, the method comprising the steps of:

providing a reactor having a reactor shell comprising an inlet and an outlet, the reactor shell being suitable for operation at elevated pressures; and a metallic basket suitable for operation at elevated temperatures inside the reactor shell, the metallic basket comprising an inlet channel, metallic sidewalls, and a bottom opposite the inlet channel and extending in a direction transverse to the inlet channel, the sidewalls being insulated by a layer of insulation material which is provided between the sidewalls of the metallic basket and an inner wall of the reactor shell, wherein the basket further comprises a fixed catalyst bed for catalytic partial oxidation of hydrocarbons, the fixed catalyst bed being supported by said bottom and surrounded by said metallic sidewalls, and wherein the inlet channel coincides with the inlet of the reactor shell; and

conducting a catalytic conversion of hydrocarbons reaction.

8. (Previously presented) The method according to claim 7, wherein the temperature of the reacting gasses is in the range of 500°C to 1300°C.

9. (Previously presented) The method according to claim 8, wherein the temperature of the reacting gasses is between 900°C and 1200°C.

10. (Previously presented) The reactor according to claim 1, wherein the bottom of the metallic basket is a grid that allows reacted gas to pass from the fixed catalyst bed to the outlet of the reactor shell.